Table 1-8: Year 2040 Build Toll Traffic Operations

Facility Type	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
I-95 Mainline	3 (5%)	33 (55%)	24 (40%)	0 (0%)	0 (0%)	0 (0%)
I-95 Merge / Diverge / Weave	24 (10%)	130 (56%)	71[1] (31%)	5 (2%)	0 (0%)	3 (1%)
I-95 Interchange Crossroads[2]	26 (23%)	27 (24%)	21 (19%)	22 (20%	9 (8%)	7 (6%)
US 301 Alternative Route (miles)	5 (3%)	35 (19%)	27 (15%)	54 (30%)	31 (17%)	30 (16%)

Source: *Design Year Traffic Operations Technical Memorandum* (December 2011)

1. The conceptual design had one ramp segment, the SR 1815 (Wade Stedman Road) (Exit 61) northbound loop off-ramp, that was projected to operate at LOS F. A two-lane loop off-ramp would provide LOS D and meet the NCDOT minimum LOS standard. This modification to the design concept was evaluated and it was determined that it would not affect the project cost estimate nor required right-of-way. Therefore, it is considered to be included in the preferred design concept and scope.
2. One interchange crossroad segment (SR 2341) was not included in the traffic model. SR 2341 is dead end road that does not provide access to I-95 from any of the model loading points. In addition, negligible growth is anticipated on this link. Therefore, it was decided not to include SR 2341 in the model.

Based on the LOS analysis for the I-95 mainline using 2040 AADTs and an improved I-95 toll facility, all of the basic freeway segments are projected to experience acceptable traffic operations. The traffic operations analysis of the 60 basic freeway segments showed that all 60 of the segments are projected to operate at LOS C or better. The I-95 Build Toll mainline LOS is also shown in **Figure 1-7**.

In addition to the basic freeway segments, a capacity analysis of the interchange ramp merge and diverge areas was performed. Similar to the basic freeway segments, using 2040 AADTs the LOS analysis of the I-95 interchange ramp merge and diverge areas showed that all but a few segments are projected to experience good traffic operations. The traffic operations analysis of the 233 ramp merge, diverge, or weave segments showed that 225 of the segments are projected to operate at LOS C or better (97 percent), five projected at LOS D (2 percent), and three projected at LOS E or F (1 percent). None of the five ramp merge, diverge or weave segments forecasted to operate at LOS D are located in rural areas and thus these segments meet the NCDOT minimum LOS standard.

The HCS analysis showed three I-95 loop on-ramp merge locations are projected to operate at LOS F due to the total traffic flow entering the ramp influence area exceeding its maximum desirable level. The three locations are the NC 53/210 (Exit 49) northbound loop on-ramp, I-295 / US 13 (Exit 58) southbound loop on-ramp, and US 421 (Exit 73) southbound loop on-ramp. In each location the total freeway flow does not exceed the capacity of the downstream freeway segment. In this case, locally high densities are expected, but no queuing is expected on the freeway. The actual lane distribution of the entering vehicles is likely to consist of more vehicles in the outer lanes than is indicated by this analysis of the ramp influence area. Overall, the operation will remain stable, and LOS F is not expected to occur (HCM 2000, Page 25-8).

According to LOS analysis of the I-95 interchange crossroads for design year 2040, most interchange crossroad segments are projected to experience acceptable traffic operations. The analysis showed that 74 crossroad segments are projected to operate at LOS C or better (66 percent), 22 projected at LOS D (20